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The major topic is the modular scheduling program developed for Virgin Valley High School in Mesquite, Nevada. The concept of modular units in curriculum planning is described with various modular units illustrated graphically. Also included is an example of a hand-generated modular schedule system which is adaptable in schools with a 200- to 33 with a 200- to 300-student population. A bibliography of publications relevant to modular scheduling is appended. The report is disseminated by Title III funds of the Elementary and Secondary Education Act. A related document is RC 003 298. (EV)

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CLARK COUNTY SCHOOL DISTRICT

VIRGIN VALLEY HIGH SCHOOL

"Biggest Little School In America"

SCHEDULING

Blaine W. Allan, Principal
Mesquite, Nevada
89024

Disseminated by Title III Project

1967

RC003290

"The schedule can be changed from master of the curriculum to servant of the teacher"

Virgin Valley High School, Mesquite, Nevada, is one of seven high schools in the Clark County School District which comprises all of Clark County, Nevada. The District covers an area of 8,000 square miles, has a school population of 62,000 students, and employs upwards of 2,500 classroom teachers. Virgin Valley School has an enrollment of 365 (K-12) and operates on a 6-6 plan. The high school, accredited by Northwest Association each year since 1939, has 165 students. The staff includes fourteen teachers in the high school and eight in the elementary with a special education teacher and a full-time librarian. Sixty-five to seventy percent of the graduates continue their education with approximately half of them completing college graduate work.

Several years ago the faculty and administration began to question traditional school organizational and instructional practices with respect to what is known about how children learn. This led to numerous studies, course work, consultation with university professors, reflective thinking, faculty meetings, action research with the eventual conclusions that there may be better ways to match teaching and learning. Early in the fall of 1963, the Virgin Valley Schools started experimenting with modular scheduling, using the computerized technique developed by the Secondary School Project of Stanford University and other progressive educators. The Western States Small Schools Project (WSSSP), the Stanford Secondary School Project, and the administration of the Board of School Trustees of the Clark County School District have made Virgin Valley an innovative school. It was one of the four pilot schools selected by Stanford University to pioneer flexible scheduling and curriculum study. Virgin Valley is using a 30 minute module with a total of 80 modules per week.

In addition to the modular schedule, Virgin Valley has sponsored a local fine arts festival for eight successive years with participating artists and schools from throughout the inter-mountain west. Each year guest artists lecture and demonstrate to students and school patrons in some aspects of fine arts. The school is very proud of the success of its "Art by Telephone" class taught by art teacher, Michael Clarke. The class has received the national "Pacemaker" award for innovations in teaching. The Virgin Valley vocational department is piloting a program in connection with the modular schedule and vocational areas related to agriculture. It has also planned to provide some of the students with on-the-job training experience. This Career Selection Program has as its goals: (1) To direct each student in developing a realistic self-appraisal with respect to his interests, his abilities, and his opportunities in the world of work; (2) To help prepare the non-college bound student for suitable entry work at the end of high school graduation; and (3) To involve the entire school faculty and community in achieving goals one and two.

These innovative practices were given policy direction by the Clark County Board of School Trustees. I/D/E/A's national organization and network, along with the Western States Small Schools Project, assists in planning and implementation of these programs.

The need to recognize individual differences and make essential changes to meet them is a pressing need in any school and toward which the Virgin Valley Schools have directed a great deal of effort.

Within a small school is to be found the potential flexibility to do many of the things necessary to accommodate individual differences: Classes are small; the teachers and students know each other well; the programs are more easily adjusted; and schedules are not difficult to change. Our school has attempted to capitalize upon these potential strengths in developing new practices that would provide better opportunities for students to pursue individual interests, satisfy individual needs and develop individual talents.

DEFINITIONS OF TERMS

Modular Scheduling: "A modular concept of course structure is based on the premise that those involved with curriculum planning can determine explicitly what kind of specific learning activities students need to have. The modular concept is then adapted in such a manner that facilitation of those elements (namely: organization of course structure, number of students involved in specific groups, teacher-pupil ratio and specific time allocations) associated with the learning activities become manageable."

Large Group Instruction: "Any activity in which the learner is involved where he is quasi-active - - listening to a lecturer, filling in a learning program, viewing a film, or taking a test - - can go on in a large assembly group, as well as in any other group size. While these groups are referred to as large groups, it is not their size, but their function which is significant....."

Small Group Instruction: "The second learning group is the one in which the student questions, discusses, clarifies, proposes, and uses his ideas and knowledge. Of necessity this group must be small, generally with only seven to fifteen students. Any more participants in this group would rob the individual of adequate opportunity to discuss and question.....A group this size is manageable in discussion and free enough for questioning. While these groups have been popularly called small groups, it might be helpful to think of them as inquiry groups."

Independent Study: "The third learning activity, and perhaps the most significant, is independent study. Usually independent study is the business of one person, although sometimes two or three work together profitably. This is an informal activity, not scheduled on a regular basis but open for the student to set and use as he sees fit."

Laboratory Group Instruction: "Laboratory as here defined includes those physical facilities for which special equipment and tools are needed to enable students to work independently and in small groups and to practice skills, to experiment, and to apply ideas suggested in large-group instruction....."

Hand Generated: The method used to make a modular schedule by hand. No computer is employed to make the computations. The person making the schedule must eradicate the conflicts that exist and assemble the schedule from the information supplied by the teachers.

BUILDING A MODULAR SCHEDULE

INTRODUCTION

An explanation has been developed by Dr. Dwight W. Allen [1] of the step-by-step development of the modular scheduling concept; a knowledge of this basic concept is necessary in the construction of a modular schedule.

I. DEVELOPING A MODULAR CONCEPT OF COURSE STRUCTURE

Tradition has led us to assume that each class offering is structured like every other class offering, i.e., each class is composed of thirty students and meets about fifty minutes daily. Little variation has evolved from this basic format of secondary education established over one hundred years ago in the Boston Grammar School. Nevertheless, educators will agree that all curricular offerings should be taught in a manner which maximizes the ability to learn - - and that this probably is not possible for all subjects in the same structural format.

The purpose of the accompanying worksheets and examples is to help conceptualize a new approach to course structure - an approach built upon the concept of a modular schedule with the assumption that widely variant course structures are appropriate.

A modular concept of course structure is predicated on the premise that those involved with curriculum planning can determine explicitly what kinds of specific learning activities students need to have. The modular concept is then adapted in such a manner that the facilitation of those elements (namely: organization of course structure, number of students involved in specific groups, teacher-pupil ratio and specific time allocations) associated with the learning activities becomes manageable.

II. THE CURRICULUM MAY BE CONSIDERED A FUNCTION OF AREA

The entire curriculum can be thought of as an area to be scheduled. The horizontal dimension represents the number of students, the vertical dimension represents the length of time. If the school has eighteen hundred students and the school day lasts from 8 A.M. to 4 P.M., the curriculum area is divided horizontally and vertically. This is shown in Figure 1.

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[1] Dr. Dwight W. Allen, Assistant Professor of Education, Stanford University.

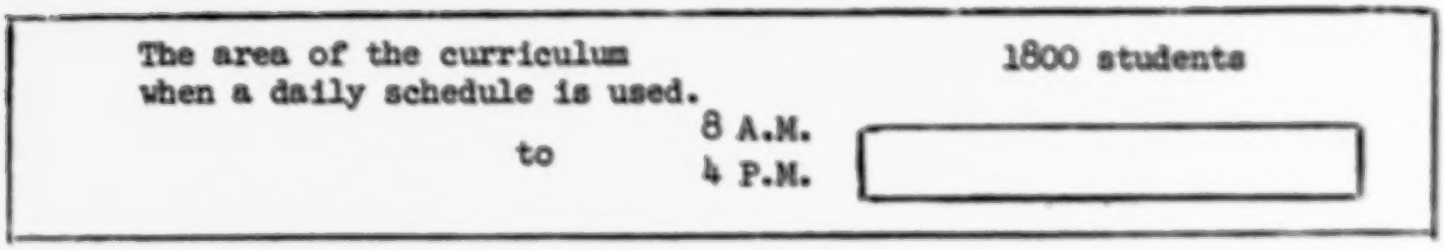


FIGURE 1. Curriculum Area

If a weekly schedule is used, the curriculum area is expanded. This is shown in Figure 2.

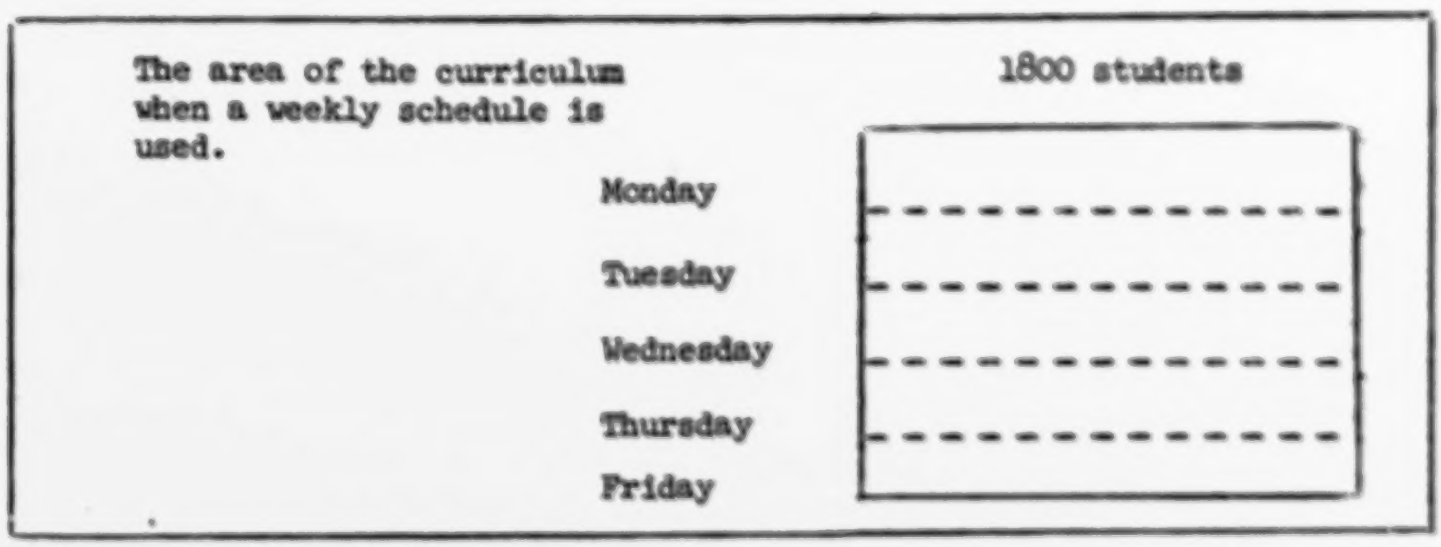


FIGURE 2. Curriculum Area Expanded

III. THE CONCEPT OF MODULAR UNITS IN CURRICULUM PLANNING

The curriculum , conceived as an area to be scheduled, is made up of sub-parts called modular units which are derived from units of time and numbers of student schedules. The modular unit chosen for time should be chosen according to the smallest amount of time that is desired for any instructional purpose. If 40 minute, 60 minute, or 120 minute classes are desired, a 20 minute module would be appropriate. The number of students selected should be also stated in terms of desired class sizes. A ten-student module would accommodate classes of 10, 20, 30, 40, etc. Though any modular unit can be selected for either period length or class size, it is desirable to select as large a modular unit as appropriate to reduce the complexity of scheduling.

One possible modular unit is that of 15 students meeting for a single half hour period. Thus a "class" of 30 students meeting for an hour (conventional class unit) would appear as a multiple of the modular unit. A wide variety of structures is possible, as being multiples of the basic modular unit. These different modular arrangements are shown in Figure 3.

15 students

3/16

½ hr. 3/8

Scale: 15 students = 3/16" width
½ hr. = 3/8" length

30 students

1 hr.

150 students

½ hr.

15 students

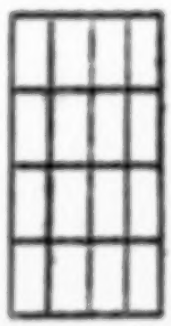
1½ hrs.

30 students

½ hr.

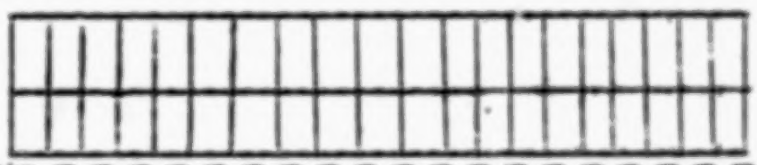
60 students

2 hrs.



300 students

1 hr.



Note that many other basic modular units are possible:

5 students		10 minutes
10 students		15 minutes
15 students	for	20 minutes
30 students		30 minutes
50 students		60 minutes
etc.		etc.

FIGURE 3. Development of Modular Units

Modular units that have been considered by school districts for planning are:

15 students for 30 minutes
15 students for 20 minutes
30 students for 15 minutes
15 students for 25 minutes
10 students for 10 minutes

The smaller the modular units, the greater the flexibility - - but also the greater the complexity.

MODULAR SCHEDULES - HAND GENERATED

by Blaine W. Allan & L. Leon Webb

Modular scheduling has had several modifications since its birth in the early sixties. The first schedules labeled "modular" were generated by making use of the facilities a computer had to offer. Because of the present exhorbitant cost (from $5.00 per student and up) of scheduling students through the use of a computer, a more efficient and less expensive manner of scheduling is needed. Hand generation of a modular schedule meets both of these criteria in a 200 to 300 student school.

After having a computer generated modular schedule for two years, the Virgin Valley High School staff in Mesquite, Nevada, decided to attempt hand generation of the schedule to be used for the 1965-1966 school year. Under the leadership of Principal Blaine W. Allan, this project was planned and developed. It was decided that certain decisions had to be made before the actual scheduling could get underway. Some of these decisions are the following:

1. How long will a module be? (12 min., 15 min., 30 min., etc.)

2. How many modules will be scheduled each day?

3. Which courses will be offered during this school year?

4. How long will the scheduling cycle be? (daily, weekly, bi-weekly, etc.)

5. What will the priorities of given classes be?

6. Will the course be a semester course or a year long course?

After the above decisions were made, the staff was assembled to generate the schedule. At Virgin Valley, a 30-minute module was selected with 16 modules per day. The schedule was to run on a one week cycle. The teachers and administration made decisions on course offerings for the year and the time length of the courses. The priorities for classes were selected as follows:

Reasons for their specific placement on the priority scale are also given.

Modular Schedules - Hand Generated (Cont.)

Priority	Subject Area	Reason(s) for this priority selection
1st	Music	1. Cuts accross all grade levels, 7-12. 2. Large number of students involved.
2nd	English	1. Required Course - 4 years English.
3rd	Math	1. Longer blocks of time required. 2. Required Course - 2 years Math.
4th	Science	1. Important in student's future life. 2. Required Course - 2 years Science.
5th	Soc. Science	1. Required Course - 3 years Soc. Science.
6th	Physical Education	1. Required Course - 4 years.
7th	Electives	1. Recommend 2 credits - Fine Arts 2. Recommend 2 credits - Practical Arts

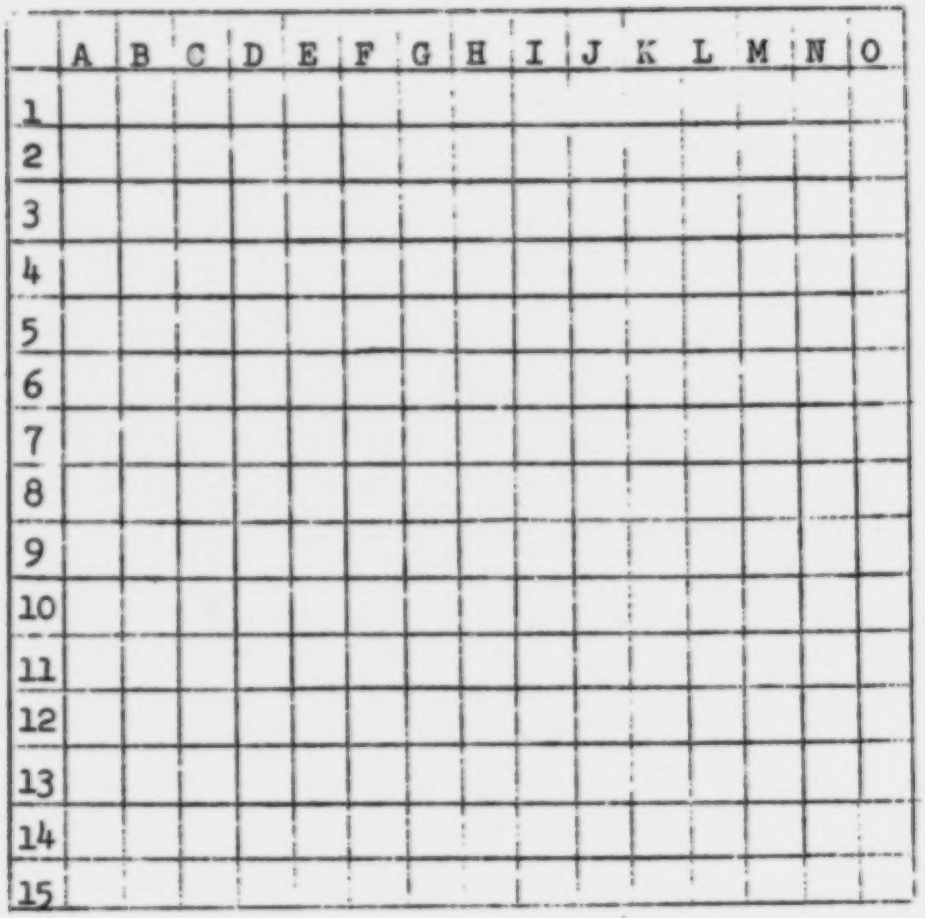
The Fine Arts program was last on the list of electives because of a completely individualized program. No specific time schedule is needed with this type of program.

To begin scheduling, the teachers will need an information sheet including the following:

1. List of priorities in order.
2. Courses to be offered during the year.
3. Teacher assignments for specific courses.
4. List of modules throughout the week to be scheduled for special meetings or events. These modules will be put on the schedule before normal classes are scheduled.

After such things as student assemblies, faculty meetings, and other essentials are scheduled, the remainder of the schedule can be completed.

One must first make up one graph board for each day on the cycle. Virgin Valley's schedule was recycled every five days so five daily boards are made up. The teachers will appear across the top of the board, the modules or periods will appear on the left-hand side of the graph. Moveable blackboards work very nicely to make up these graphs. A graph ready to complete would appear similar to that given on the next page.



The boards should be made up before the scheduling session. Paper to fit the blocks on the graph should be cut from several colors of paper. A different color will be needed for each teacher. The number of sheets each teacher will need will vary according to the number of classes he will teach and the number of modules he will teach in each class. Each sheet represents one module of time. On a schedule similar to that of Virgin Valley's, one would use 35-50 sheets of each color. After the teachers receive the small slips of paper, they would write the course names, numbers and grades of students involved in the course on the sheets with a magic marker, or other suitable process so it can be seen and read from a distance of about 20 feet. The number of sheets you will need for each class will depend on the number of modules that class meets each week. When each teacher has completed filling out his course sheets, scheduling can begin. Teachers then go to the large graph boards according to priorities and place their course cards under his name each day and at the various modules he desires to hold his classes during the various days of the week. The teacher should make sure the classes he is scheduling are not in conflict with classes already on the board. It speeds up the process if each teacher will put tape on the back of the course cards so they can simply stick the card on the graph.

After scheduling has been completed, conflicts will be worked out between the teachers involved. These conflicts are usually very easy to resolve if the staff is willing to give and take and reshuffle their program a little. When the staff is larger than 25 teachers, we recommend using the computer.

If your school district has in-service training days, this would make a very good project for teacher training. This type of scheduling involves the entire staff and gives them some insight as to the problems the administration faces when making up a schedule. It also gives them the opportunity to iron out difficulties before the schedule is put into practice.

After all conflicts have been eliminated as much as possible, a check should be made for each class to insure there are no conflicts which have been overlooked. When this has been determined, a copy of the master schedule for each day of the cycle should be made. Individual teacher schedules may be made up by filling in information from the daily boards into a form such as the one shown below.

Mr. Clarke

Name

Mod	Monday	Tuesday	Wednesday	Thursday	Friday
1					
2	Assembly				
3	Art 10-12		Art 9	Art 11-12	
4	Art 8	Art 10-12		Art 9	
5	Art 11-12		Art 10-12		
6	Art 9	Art 11-12	Art 8	Art 10-12	
7		Art 9	Art 11-12		
8	Lunch	Lunch	Lunch	Lunch	Lunch
9	Art 9-10	Art 11-12	Art 11-12	Art 9-10	Art 9-10
10	Art 9-10	Art 9-10	Art 11-12	Art 11-12	Art 9-10
11	Art 11-12	Art 9-10	Art 9-10	Art 11-12	Art 11-12
12	Art 11-12	Art 11-12	Art 9-10	Art 9-10	Art 11-12
13				Faculty Meeting	
14				Faculty Meeting	
15					
16					

The completed schedule will appear as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M
1 8:00-8:30	Band 5-6	Rd. Sp.	Prep	Prep	Prep	Eng 7	Math 9-10	Prep	Coun	Am. Hist	Math 9-10	Am. Govt	Prep
2 8:30-9:00	Prep	Rd. Sp.	Prep	Prep	Prep	Eng 7	Math 9-10	Prep	Coun	Am. Hist	Math 9-10	Am. Govt	Prep
3 9:00-9:45	Prep	Prep	Lab	Prep	Art 10-12	Geom 11-12	Study	Hist 8	Coun	GPE 11-12	Farm Mech	Math 7	Eng I
4 9:45-10:30	Prep	Prep	H.E. 7-8	Ind Arts	Art 7-8	Eng 11-12	Prep	Wd. Hist	Empl Prep	Prep	Prep	Study	Eng III
5 10:30-11:15	Band 7-12	Lab	Lab	Dr. Ed.	Art 11-12	Earth Sci	Prep	Study	Coun	Prep	Rural Ld Shop	Prep	Phys-ics
6 11:15-12:00	Lab	Off. Prac	H.E.	Lab	Art 9	Prep	Alg. II	Hist 7	Sthd I	GPE 9-10	Alg. I	Math 8	Study
7 12:00-12:30	Study	Basic Bus.	P.E. 7-8	Draft	Lab	Prep	Bio.	Prep	Coun	GPE 7-8	Hort	Hlth 7-8	Eng II
8 12:30-1:00	LUNCH					LUNCH					LUNCH		
9 1:00-1:30	Span.	Off. Prac	Fd. Cl.	Study	Art 9-10	Voc. Eng	Sci. 8	Hlth 10	Sht Hand	P.E.	Eng-ines	Prep	Elec
10 1:30-2:00	Mus. 7-8	Type I	Fd. Cl.	Study	Art 9-10	Voc. Eng.	Lab	Prep	Coun	P.E.	Eng-ines	Prep	Elec
11 2:00-2:30	Chorus 9-12	Rd. Sp.	Fam. Liv.	Lab	Art 11-12	Eng. 8	Lab	Study	Coun	Ath.	Eng-ines	Ath.	Lab
12 2:30-3:00	Chrous 9-12	Type I	Fam. Liv.	Lab	Art 11-12		Sci. 7	Study	Coun	Ath.	Eng-ines	Ath.	Lab
13 3:00-3:30		Drill Team		Dr Ed 10-12	Year-book				Jour.		Lab		
14 3:30-4:00		Drill Team		Dr Ed 10-12	Year-book				Jour.		Lab		

This type of scheduling has helped our staff and program tremendously.

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